DRAFT
SPACE SHUTTLE LAUNCH OPPORTUNITIES

Shuttle Use

The Space Shuttle may be used if such use is consistent with Public Law 101-611, which is excerpted below.

SPACE SHUTTLE USE POLICY

The Space Shuttle Use Policy articulated in Section 112 of P.L. 101-611, the Fiscal Year 1991 NASA Authorization Act (42 U.S.C. 2465a), states the following:

SEC. 112. SPACE SHUTTLE USE POLICY

(a) (1) It shall be the policy of the United States to use the Space Shuttle for purposes that (i) require the presence of man, (ii) require the unique capabilities of the Space Shuttle or (iii) when other compelling circumstances exist.

(2) The term "compelling circumstances" includes, but is not limited to, occasions when the Administrator determines, in consultation with the Secretary of Defense and the Secretary of State, that important national security or foreign policy interests would be served by a Shuttle launch.

(3) The policy stated in subsection (a) (1) shall not preclude the use of available cargo space, on a Space Shuttle mission otherwise consistent with the policy described in the subsection (a) (1), for the purpose of carrying secondary payloads (as defined by the Administrator) that do not require the presence of man if such payloads are consistent with the requirements of research, development, demonstration, scientific, commercial, and educational programs authorized by the Administrator.

4. PURPOSES THAT MEET THE POLICY

The use of the Space Shuttle will be restricted to only those primary payloads whose purposes are consistent with the above-stated policy. Payloads which are assigned to the Shuttle based on the first two of the three criteria of Section 112 of the Act will be so assigned primarily due to their physical/functional characteristics and/or operational needs. The third criterion will involve factors such as national security and foreign policy considerations, etc. Note that these criteria do not have to be met for secondary payloads.

The following is a listing of examples of the purposes that are considered to meet the three criteria. This listing is representative and not considered inclusive. For payloads assigned to the Shuttle where the basis is other than that it requires the presence of man, the specific justification will be included in NASA's annual report to Congress.

Examples of Purposes Requiring the Presence of Man:

Scientific observation
- Observation/description of phenomena
- Real-time data evaluation, correlation with other data
- Pointing of observing/measuring instruments at phenomena of interest
- Adjusting of instrument parameters (turning, filter selection, gain, levels, etc.) for optimum observations

Skilled instrument operation
- Calibration
- Removal/reloading of film, reagents, etc.
- Maintenance/repair
- Monitoring of operations

Crew-related life sciences/medical experiments
Operation of Shuttle and Shuttle Systems
- Shuttle maneuvers for payload requirements
- Remote manipulator system operations
- Control and monitoring of support functions (power, cooling, etc.)

Servicing or repair of an orbiting payload
Extravehicular activity (EVA)
Pre-deployment checkout/status verification

Examples of Purposes Requiring Unique Shuttle Capabilities:

Return of a payload to Earth
- Recovery of product or specimens for analysis, further processing or distribution
- Return of high value hardware for reuse
- Retrieval of payloads from orbit

Accommodation of size and/or weight of large payload

Examples of Other Compelling Circumstances:

National security or foreign policy considerations
Launching of an ELV would result in an unacceptable risk of loss of a unique scientific opportunity
ELV launch services would not be available when required
Cost-effective ELV launch services to meet specific mission requirements are not reasonably available.

General Space Shuttle Manifest Opportunities

The Space Shuttle fleet is predominantly committed to the assembly of the International Space Station (ISS) through FY 2006. Proposers considering launch on the Space Shuttle should be aware that projected manifest opportunities are expected to remain very limited through the ISS assembly timeframe. Proposers should contact Robert Elsbernd, (202) 358-4417/relsbern@hq.nasa.gov, of the Space Access Office at NASA Headquarters to discuss Shuttle manifesting opportunities.

General Capabilities and Requirements of the Shuttle

The Space Shuttle offers unique opportunities to launch payloads that are large, heavy and/or require recovery or require servicing/checkout in low earth orbit. The primary payload(s) is the reason for the Shuttle flight and drives the mission requirements. The Shuttle can also carry smaller secondary payloads on a space-available basis. Such secondary payloads share available mission resources and capabilities of the Space Shuttle after the requirements of the primary payload(s) are met. Experiments can be conducted on a free flyer. Free flyers can be either dedicated satellites or carriers, to which the instrument(s) mounts, which, in turn, interface with the Orbiter. The capabilities and resources available to the experimenter are the combination of the instrument/carrier design and the portion of Shuttle resources allocated to that payload.

For technical inquiries regarding Shuttle, contact the Space Shuttle Customer Integration Office, Code MT2, NASA Johnson Space Flight Center, Houston, Texas, 77058-3696; contact J. J. Conwell (281-483-1178), E-mail address: jconwell@ems.jsc.nasa.gov

Payload Size

The capacity of the Space Shuttle is in excess of 32,000 pounds. Secondary payloads generally do not exceed 8,000 pounds. Similarly, the shuttle payload bay volume (15' dia. x 60' long) is shared among the entire payload complement.

Orbits

The Shuttle can carry payloads into orbits with an inclination ranging from 28.5 degrees to 57 degrees. Altitudes at which spacecraft and/or carriers can be deployed depend on a variety of factors but can vary from 110 nmi to over 300 nmi. Spacecraft and/or free flyers can carry orbit adjust systems to modify orbit parameters.

Mission Duration

Shuttle launched mission duration varies depending on the mission design. Mission designs can include deployment and retrieval on the same Shuttle mission, deployment on one mission and retrieval by a later mission, or deployment and no retrieval.

Environment

Launch, orbital, and landing environments are driven by a combination of the Shuttle environment, the presence of other payloads in the bay, and the instrument/carrier design. Specific environments are available from spacecraft and carrier providers.

Payload/Launch Vehicle Integration and Launch

Integration of the payload with the Space Shuttle will be accomplished at the Kennedy Space Center in Florida. The proposer's launch site integration and testing team will work with the KSC ground operations team during the integration of the flight payload, and its ground systems, with the Shuttle and its associated GSE.

Shuttle Safety

When the proposed mission is a Shuttle payload the proposer is required to plan and implement a system safety program that meets all Space Shuttle safety requirements imposed by the Johnson Space Center for NSTS payloads. The controlling safety documents are (NHB) 1700.7, Safety Policy and Requirements for Payloads Using the Space Transportation System; and (KHB) 1700.7, "STS Payload Ground Safety Handbook". The Space Shuttle Program typically requires 3 safety reviews. Proposers are advised that Space Shuttle safety requirements are particularly strict and may lead to unexpected design changes, additional test or analysis requirements, and associated cost increases. These can be mitigated significantly by early involvement with the Shuttle Safety Office, however, higher contingency levels are recommended for Shuttle based missions.

Special Considerations

Proposers should specifically address their plans and special considerations for dealing with:
(a) Space Shuttle compatible upper stages, and
(b) If applicable, nuclear materials aboard the Space Shuttle.

For technical inquiries regarding these special considerations please again contact the Johnson Space Flight Center, Mr. J. J. Conwell (281-483-1178), E-mail address: jconwell@ems.jsc.nasa.gov . Inquiries on upper stages should be directed to the Marshall Space Flight Center, Mr. David Stephenson, (256-544-0211.), E-mail address: david.d.stephenson@msfc.nasa.gov

Launch Cost Funding Requirements

For purposes of this AO, Space Shuttle launch costs will be identified on a case-by-case basis. For Space Shuttle launch costs please contact Robert Elsbernd, (202) 358-4417/relsbern@hq.nasa.gov